

# **PNNIB-11 Symposium Program**

9/8/2006

## **Tuesday, Sept. 12 Evening**

17:00 – 20:00      Registration and light snacks

## **Wednesday, Sept. 13 Morning**

7:30      Registration opens

### **Opening remarks**

8:30 – 8:40   Symposium Chair – R. Keller

8:40 – 8:45   Local Organizing Committee Chair – G. Rouleau

### **Key-note address**

8:45-9:15   Louis Rosen, former director of LANSCE at LANL

### **Fundamentals**

**O. Fukumasa, chair**

9:15-9:40   Cross Section Data for Negative Ion Sources

M. Capitelli, R. Celiberto, F. Esposito and A. Laricchiuta

9:40-10:05   State-to-state and Charged Particle Kinetic Modeling of Time Filtering  
and Cs Addition

M. Capitelli, P. Diomede, C. Gorse, S. Longo and D. Pagano

10:05-10:20   Break

10:20-10:45   Study of Volume and Surface Effects in Pure Hydrogen Discharges  
F. Taccogna, R. Schneider, U. Fantz, S. Longo and M. Capitelli

10:45-11:10   Electron Temperature Control in Plasmas with Mesh Grid Bias and its  
Application to Hydrogen Negative Ion Production  
O. Fukumasa, D. Ito and Y. Jyobira

11:10-11:35   Numerical Analysis of High-energy Electrons and Their Effect on H<sup>-</sup> Ion  
Production in a Cs Seeded H<sup>-</sup> Ion Source  
T. Naoyuki

11:35-12:00 Influence of Magnetic Fields and Biasing on the Plasma of an RF Driven Negative Ion Source  
D. Wunderlich, R. Gutser, U. Fantz and the NNBI-Team

12:00-12:25 Research of the Negative Ion Source Based on Reflective Discharge with and without Addition of Cesium  
V. P. Goretsky, A. V. Ryabtsev, I. A. Soloshenko and A. I. Shchedrin

12:25-14:00      Lunch

## **Wednesday, Sept. 13 Afternoon**

## **Ion Sources for Accelerators (1)**

R. Welton, chair

14:00-14:25 The ISIS Penning H<sup>-</sup> SPS and Diagnostic Developments at RAL  
D. Faircloth

## 14:25-14:50 The HERA RF-Driven Multicusp H<sup>-</sup> Ion Source J. Peters

## 14:50-15:15 Ion Source Development at the SNS R. F. Welton, M. P. Stockli, S. N. Murray, J. Carr and J. Carmichael

15:15-15:30 Break

## 15:30-15:55 Tripling the Total Charge per Pulse of the Polarized Light Ion Source at COSY R. Gebel, O. Felden, R. Maier and P. v. Rossen

15:55-16:20 ECRIN and Multicusp Sources at CEA Saclay  
O. Tuske, O. Delferrière, D. De Menezes, R. Gobin and F. Harrault

## 16:20-16:45 Towards an H<sup>-</sup> RF Source for Future CERN Accelerator Projects D. Kuechler, T. Meinschad, J. Peters and R. Scrivens

## 16:45-17:10 Ion Source Choices - an H<sup>-</sup> Source for the High Intensity Neutrino Source D. Moehs

## **Wednesday, Sept. 13 Evening**

International Committee Meeting (Working Dinner)  
- Exact time and place to be determined. -

## **Thursday, Sept. 14 Morning**

### **Ion Sources for Accelerators (2)**

**J. Peters, chair**

- 8:30-8:55 Direct Current H<sup>-</sup> Source for Accelerators: Achievements and Problems  
Yu. I. Belchenko and A. L. Sanin
- 8:55-9:20 Multicusp Ion Source with External RF Antenna for Production of H<sup>-</sup> Ions  
T. Kalvas, S. K. Haato, H. Vainionpää, K. N. Leung, S. B. Wilde and  
P. Madrillon
- 9:20-9:45 A Proposal for the Improvement of Non-cesiated H<sup>-</sup> Sources  
R. Becker
- 9:45-10:00 Break
- 10:00-10:25 Surface Plasma Sources with Helicon Plasma Generator  
V. Dudnikov, G. Dudnikova and P. Farrell.
- 10:25-10:50 Plasma and Beam Production Experiments with HYBRIS, a Microwave-assisted H<sup>-</sup> Ion Source  
R. Keller, J. Kwan, S. K. Haato, M. Regis and J. Wallig
- 10:50-11:15 Helicon Plasma-generator Assisted Negative-Ion-Source Project at the Los Alamos Neutron Science Center  
O. Tarvainen, M. Light, G. Rouleau and R. Keller

### **Diagnostics**

**A. Hershcovitch, chair**

- 11:15-11:40 Laser Based Beam Diagnostic for the RAL FETS  
C. Gabor, D. A. Lee, A. Letchford and J. Pozimski
- 11:40-12:05 Electron Energy Distribution Function Measurements by Langmuir Probe in ITER Like Negative Ion Sources  
B. Crowley, D. Homfray, U. Fantz, D. Boilson and R. S. Hemsworth
- 12:05-12:30 A Novel Optical Cavity Technique for Negative Hydrogen Ion Density Measurements  
R. Faulkner, F. Soberon, D. Boilson, M. B. Hopkins, M. Bowden and  
R.S. Hemsworth
- 12:30-14:00 Lunch

## **Thursday, Sept. 14 Afternoon**

### **Ion Sources for Fusion**

**Y. Takeiri, chair**

14:00-14:25 High-Power Negative Ion Sources for Neutral Beam Injectors in Large Helical Device

Y. Takeiri, O. Kaneko, K. Tsumori, Y. Oka, K. Ikeda, M. Osakabe, K. Nagaoka, E. Asano, T. Kondo, M. Sato, M. Shibuya and S. Komada

14:25-14:50 Development of a RF Negative Ion Source for the ITER Neutral Beam System

W. Kraus, S. Christ, H. D. Falter, U. Fantz, P. Franzen, M. Fröschle, B. Heinemann, D. Holtum, S. Leyer, P. McNeely, R. Riedl, E. Speth and D. Wunderlich

14:50-15:15 The Use of Thoriated Tungsten Filaments in the KAMABOKO III Ion Source

D. Boilson, R. S. Hemsworth and A. Krylov

15:15-15:40 Power Transmission from the ITER Model Negative Ion Source

D. Boilson, R. S. Hemsworth, A. Krylov and H.P.L. de Esch

15:40-15:55 Break

### **Beam Formation, Acceleration and Neutralization (1) M. P. Stockli, chair**

15:55-16:20 Negation Ion Beam Extraction and Emittance

A. J. T. Holmes

16:20-16:45 Physical Processes in Compensated Beams of Negative Ions and Problems of Transport of the Beams

I. A. Soloshenko, V. N. Gorshkov and A. M. Zavalov

16:45-17:10 Space Charge Neutralisation in the ITER Negative Ion Beams

Elizabeth Surrey

17:10-17:35 Status of the Development of the SINGAP Accelerator for ITER

R. S. Hemsworth, H. P. L. de Esch, M. Kovari, L. Svensson and F. Villecroze

## **Thursday, Sept. 14 Evening**

18:30-19:00 No-host reception

19:00-21:00 Symposium Dinner

## **Friday, Sept. 15 Morning**

## **Beam Formation, Acceleration and Neutralization (2)**

- 8:30-8:55 A Particle-in-cell Gun Code for Surface-converter Ion Source Modeling  
E. Chacon-Golcher and K. J. Bowers

8:55-9:20 SNS Upgrade LEBT  
M. P. Stockli

9:20-9:45 Modeling of High Current H<sup>-</sup> LEBT with LORENTZ-EM 3D Ion Optics Code  
S. K. Hahto, D. G. Bilbrough and R. Keller

9:45-10:10 Separation of H<sup>-</sup> Ions and Co-extracted Electrons at Full Energy  
J. Dietrich and R. Becker

10:10-10:25 Break

## **Applications**      **J. Sherman, chair**

- 10:25-10:50 Negative Decaborane Ion Beam from ITEP Bernas Ion Source  
S. V. Petrenko, R. P. Kuibeda, T. V. Kulevoy, V. A. Batalin, V. I. Pershin, A. V. Koslov, Yu. B. Stasevich, V. A. Koshelev, A. Hershcovitch, B. M. Johnson, E. M. Oks, V. I. Gushenets and H. J. Poole

10:50-11:15 Developing a Suitable Gas Ion Source for  $^{14}\text{C}$  Accelerator Mass Spectrometry  
K. von Reden, M. Roberts, B. Han, R. Schneider and J. Wills

11:15-11:40 Isobar Suppression by Photodetachment in an RF Quadrupole Ion Guide  
C. C. Havener, Y. Liu, J. F. Liang, H. Wollnik and J. R. Beene

## Symposium Summaries R. Keller, chair

- 11:40-12:10 Accelerator Ion Sources, Diagnostics and Fundamentals  
D. Moehs

12:10-13:10 Lunch

13:10-13:40 Fusion Ion Sources, Beam Formation, Acceleration and Neutralization  
T. Jones

13:40-13:50 Farewell Address  
R. Keller